

Review

A Justice-Oriented Conceptual and Analytical Framework for Decolonising and Desecularising the Field of Educational Technology

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Abstract: Education systems globally are increasingly being shaped by the logics, assumptions and pedagogical underpinnings of educational technology (EdTech) products, services, programmes, policies, and systems. These often promote rationalistic, secular, universal, objectivist, (post)modernist, written, behaviourist, and individualistic ways of being, marginalising religious, spiritual, oral, subjective, critical, and communitarian ways of being. Given that technological ways of being have been propagated globally, these logics are no longer predominantly promoted by those in the Global North, but by techno-solutionists globally, although the core-to-periphery flows of ideology and funding are still prominent. This article develops a conceptual and analytical framework for decolonising and desecularising the field of EdTech. Concepts are drawn from various discourses: the desecularisation of knowledge to set the ontological framing; embodied cognition to set the epistemological framing; and social justice and decolonial discourses to set the axiological framing. From this, the article develops the Dimensions of Human Injustice Analytical Framework—covering material, ontological and epistemic, and (geo)political injustices—to assist policymakers, educators, EdTech developers, and international development practitioners in identifying and confronting coloniality in their EdTech. Acknowledging the complexity and contentions within decolonial thought, this article does not claim a unified stance on achieving justice but aims to offer a tool for deconstructing and questioning injustices.



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1. Introduction

With increasing access to devices and connectivity, and the rapid adoption of educational technologies (EdTechs) during the COVID-19 pandemic, technology usage in education has become more established and has emerged as the north star for education institutions and governments. The pandemic has shown the many challenges that need to be addressed to effectively use EdTech, as well as the inequalities that its use can introduce [1]. Although EdTech is no longer seen through rose-tinted glasses, and indeed increasingly viewed with more caution as Generative AI (GenAI) in education becomes more popular, much of the discourse still firstly focuses on overcoming the barriers to access and use (e.g., devices, connectivity, skills, maintenance, design, and implementation) and secondly, consciously or subconsciously, assumes that the technologisation of education is the desired end goal [2].

As such, this article goes beyond looking at hardware and software (and its design, implementation, and cost-effectiveness) to question the embedded logics, knowledges, values, and philosophical underpinnings in the field of EdTech. Similarly, beyond looking at whether EdTech improves learning outcomes, the article interrogates the purpose of education decolonially. This article builds upon previous arguments that prevailing, neocolonial

ideologies, assumptions, and methods used in EdTech often marginalise religious, spiritual, oral, subjective, critical, and communitarian ways of being through their prioritisation of rationalistic, secular, universal, objectivist, (post)modernist, written, behaviourist, and individualistic ways of being [3,4]. It is suggested that this is because these hegemonic influences have shifted the purpose of education from something more intrinsic—focused on moral development, community, shared responsibility, and spiritual growth—to something more instrumental—focused on skill acquisition, employment, wealth generation, individualism, and development.

To date, there is no holistic conceptual framework to critically analyse the field of EdTech from a decolonial lens. The aim of the article is twofold. Firstly, the article draws on various discourses to develop a conceptual framework that reveals how the hegemonic technological way of being is being propagated globally in education [5], building on the existing neocolonial injustices in education. Concepts are drawn from the desecularisation of knowledge (Section 3.1), embodied cognition (including critical reflexivity) (Section 3.2), social justice (Section 3.3), and decolonial discourses (Section 3.4). Social justice and decoloniality in education are critically analysed to illustrate the complex, entangled, and contentious conflicting viewpoints.

Secondly, the article ties together these concepts to form the “Dimensions of Human Injustice” Analytical Framework (Section 4) which highlights three distinct yet overlapping and reinforcing injustices present in the field of EdTech, namely: material, ontological and epistemic, and geopolitical injustices. The article does not aim to speak from any homogenised standpoint in terms of how to bring about justice, and in fact, argues that this is a limitation of umbrella decolonial approaches. Instead, the purpose of this article is to assist researchers, implementers, and policymakers in gaining a critical consciousness through providing a tool that they can use to deconstruct, question, and critically analyse the field of EdTech.

The article begins by covering necessary background information about the origins of this research, the positionality of the author, the key terminologies used, and how these form the theoretical framings of the article in Section 2.

2. Background

2.1. Terminology

Terms can have different connotations when used by different groups, particularly when taking a decolonial approach. This section provides some initial definitions of how certain terms are used in this article, before further interrogation in Section 3.

- Educational Technology (EdTech): This encompasses the hardware, software, products, services, infrastructure, applications, and interfaces [6].
- The field of EdTech: This refers more broadly to the projects, programmes, processes, policies, strategies, values, knowledge systems, and philosophies that EdTech are situated in [6].
- Global North and Global South: These terms are used to acknowledge the colonial and neocolonial influences of some regions over others and are, thus, geopolitical rather than geographic. These are used instead of economic groupings like “low-income countries” since the latter does not acknowledge the power dynamics in play, or the geopolitical injustices that led to some countries being wealthier than others. Occasionally, Western and Euro-American are used if the cited scholars use these terms or if epistemic roots of knowledge are being discussed. All these terms are used acknowledging they refer to the dominant modern systems of thought from those regions, and not the marginalised schools of thought (such as those from the indigenous groups in the Americas).
- Coloniality: This refers to the “long-standing patterns of power that emerged as a result of colonialism, but that define culture, labour, intersubjectivity relations, and knowledge production well beyond the strict limits of colonial administrations. Thus, coloniality survives colonialism. It is maintained alive in books, in the criteria for

academic performance, in cultural patterns, in common sense, in the self-image of peoples, in aspirations of self, and so many other aspects of our modern experience" [7] (p. 243).

- Decoloniality: This refers to "the dismantling of relations of power and conceptions of knowledge that foment the reproduction of racial, gender, and geopolitical hierarchies that came into being or found new and more powerful forms of expression in the modern/colonial world" [8] (p. 440).
- Technological way of being: This phrase is used at two levels. At a practical level, this phrase refers to how technology has permeated throughout our lives, shaping, for example, how we think, behave, communicate, socialise, learn, and work. This guides our values, behaviours, and experiences of and in the world. At a philosophical level, it is used in the Heideggerian sense to refer to a technological mindset that views the world (and human beings) instrumentally as resources to be utilised, optimised, and dominated, leading to exploitative engagements with the world [5]. Furthermore, this focus on productivity and efficiency leads to the forgetfulness of our intrinsic purpose and the questions of existence.

Further complex terms are discussed in more depth in appropriate sections.

2.2. Developing a Conceptual Framework

The definition of a conceptual framework varies depending on the purpose, research topic, and discipline(s), as does the process for developing one. The purpose here is to equip policymakers, educators, EdTech developers, and international development practitioners with the language, terminology, and tools to identify and confront neocolonial aspects of their EdTech. Conceptual frameworks tie together different concepts, theories, and/or variables related to the thing being studied to explain complex phenomena [9]. While a theoretical framework is more systematic, a conceptual framework describes the researcher's approach to addressing the topic. As such, the researcher's beliefs, personal interests, goals, social location, identity, and positionality inform the development of a conceptual framework and the selection of theories and the literature informing it [10]. Each concept that the framework draws on adds a unique dimension attempting to make the framework as holistic as possible. However, frameworks are models of reality, constantly evolving and contextual. Through making hidden assumptions and factors explicit, it helps to make the model more realistic and adaptable [11].

2.3. Origins of the Research and Positionality

This article builds upon the conceptual framework I developed in doctoral research addressing injustices in Massive Open Online Courses (MOOCs) in South Africa [12]. The literature and theorisation have since been revised to be more applicable to EdTech in general, as well as updated with newer literature and global occurrences.

My positionality as a South African, Muslim woman of Indian ethnicity contributed significantly to the conceptual framework development. While experiencing racial discrimination and marginalisation in certain ways because of my race and religion, it is not comparable to the experiences of Black South Africans. Due to Apartheid-engineered social stratification, Indians were given more benefits and rights, creating tensions and superiority complexes that still exist today; a legacy of divide-and-conquer colonial techniques. Furthermore, my privileges extend to studying and living in the Global North, which has given me a voice and platform that others striving for similar justice-oriented goals may not have. Thus, through experiencing both worlds, the hope is that my hybrid identity and multiple privileges give me a "double vision" [13].

Beyond my cultural and historical positionality, my religious standpoint as a Muslim guides my theoretical framing (Section 2.4). Firstly, my testification of one God as the ultimate reality and source of all existence guides an ontological stance of realism. Secondly, my testification of the Quran as Truth and a valid source of revealed knowledge guides my epistemological stance in terms of what counts as knowledge and how it can be known. While it is unconventional to acknowledge such standpoints in a journal article, many

researchers of faith experience cognitive dissonance when having to detach core tenets of their beliefs to fit into secular academic research. In a paper whose core purpose is the conceptualisation of decolonial approaches, it is imperative to mention this and how it foundationally impacts the conceptual framework proposed. Additionally, for those looking to use and adapt the framework based on their own ontological and epistemological stances, making these premises explicit assists in pinpointing where one might tailor the approach. Similarly, this article draws on several frameworks, approaches and ideas developed by thinkers that may take different ontological and epistemological positions; these are drawn on when useful provided they are reconcilable with the theoretical framing of this article.

2.4. Theoretical Framing

The ontological stance taken in this article is realism, and the epistemological stance taken is social constructionism. While seemingly a strange pairing, this research posits that social constructionism can be “at once realist and relativist” [14] (p. 63), [15]. This is because there is a distinction between realism and objectivism. Realism is “an ontological notion asserting that realities exist outside the mind” [14] (p. 10). Objectivism is “an epistemological notion asserting that *meaning* exists in objects independently of any consciousness” [14]. Crotty [14] (p. 10) asserts that “constructionism in epistemology is perfectly compatible with a realism in ontology”. Constructionism can thus bring together elements of objectivity and subjectivity to emphasise “experienced reality” [14].

Constructionism is similar to what embodied cognition theorists call non-objectivism [16]. Constructionism is built upon symbolic interactionism and phenomenology, and became popular through the work of Berger and Luckmann [17]. Constructionism, according to Crotty [14] (p. 10), is the view that “knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context”.

Constructionism emphasises interaction, interpretation, and intentionality, and differs from subjectivism which views that “meaning does not come from the interplay between the subject and object but is imposed on the object by the subject”, implying a complete denial of any objective reality [14] (p. 10). This research approach thus differs from the strands of post-structuralist and post-modernist approaches that may take extreme subjectivist stances.

Building upon constructionism, social constructionism emphasises the social element in the meaning-making process; that is, the history and culture which “precede us” and to which we are “born into” and “embedded” into that function as “a publicly available system of intelligibility” [14] (pp. 52, 54), [15]. This epistemological stance thus strongly overlaps with embodied cognition theory that understands culture as guiding human behaviour.

3. Conceptual Framework

The selected discourses aim to reveal historical and current systems of oppression in everyday life, in the formation of knowledge and education, and in the realm of globalised digital education and EdTech. These four concepts were selected for their capacity to articulate and analyse injustices. Desecularisation and embodied cognition are first unpacked to lay the philosophical underpinnings of this research. Firstly, the desecularisation of knowledge expands on the ontological dimensions of knowledge, education, and justice, incorporating the sacred that is often abandoned in materialist approaches.

Secondly, embodied cognition adopts an epistemological perspective asserting that knowledge is moulded by biological, environmental, contextual, and historical factors, while also maintaining a realist ontological position that posits the existence of a pre-existing world. Therefore, our situated knowledge guides our exploration of this reality. Critical pedagogy, which focuses on the political dimensions of knowledge creation, is

combined with embodied cognition to expose injustices where particular ways of being and ways of knowing are marginalised.

Subsequently, the conceptualisations of (in)justice, especially within the realm of education, are examined by critically analysing social justice and decolonial discourses, shaping the axiological dimensions of this framework. Although broad social justice and decolonial theories discuss some similar issues, they have traditionally been treated as distinct discourses due to their diverse intellectual origins and underpinnings; social justice originated as a concept in the Global North, while decoloniality emerged in the Global South.

Figure 1 illustrates how the various concepts drawn on fit together to form a conceptual framework for decolonising and desecularising the field of EdTech.

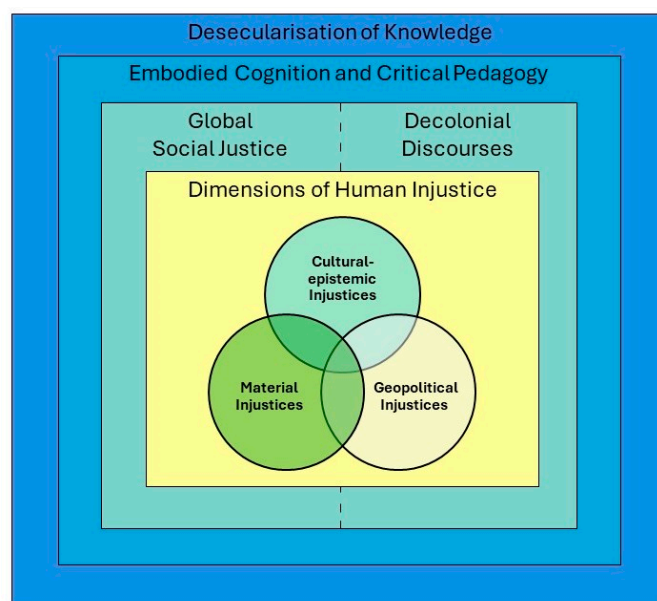


Figure 1. The conceptual framework for decolonising and desecularising EdTech.

The following section starts at the first principles to re-establish the purpose of education to later reset the framing in which EdTech is discussed.

3.1. Desecularisation of Knowledge

Secular refers here to something that is not religious, spiritual, or sacred. Secularisation is defined as “the loosing of the world from religious and quasi-religious understandings of itself, the dispelling of all closed worldviews, the breaking of all supernatural myths and symbols. . . [it is] man turning away from the world beyond towards this world and this time” [18] (p. 2). Mahmood [19] further argues that secularism is not merely a separation of religion and state but a means to manage, regulate and privatise religion which marginalises religious minorities through its homogenous frameworks. Desecularisation, understood as counter-secularism, is a response to the increasing trends and forces promoting secularism as a universal worldview [20]. While some discourses on desecularisation focus on debating religious decline versus incline theories, the aim here is to counter the spread of secular thinking as the only worldview, noting that the pervasive spread of secularism often adapts and/or amalgamates with religious, spiritual, or sacred worldviews in complex ways (e.g., the privatisation of religion) [21]. We are generally unaware of the secularising processes that penetrate into social norms (e.g., how we dress or eat), art, literature, and architecture [21].

While there are various scholars exploring secularism, they are mainly Christians from the West who discuss (and debate) the extent to which secularism grew out of Christianity, and how to respond to this [18]. This framework unpacks desecularisation and dewesterni-

sation jointly through the work of Al-Attas, who looks at secularisation's impact beyond the West and Christianity, and, in particular, on Islam [22]. Westernisation refers to the dominant, disenchanted, and modern Western values, cultures, philosophies, aspirations, aesthetics, ethics, laws, and aspirations that have proliferated throughout the world, noting that other non-dominant, diverse values have existed and continue to exist today in Western countries [22]. This modern Western civilisation grew out of "[A]ncient Greece and Rome; their amalgamation with Judaism and Christianity, and their further development and formation by the Latin, Germanic, Celtic and Nordic peoples" [22] (p. 134). While religion is often juxtaposed with rationality (i.e., a leap-of-faith narrative), the Quran and Islamic practise encourage reasoning, rationalising, and reflection (resulting in the Islamic world providing the foundations of scientific inquiry, mathematics, and medicine, to name a few) [23].

3.1.1. The Nature of Knowledge

Al-Attas argues that the greatest challenge that we now face is that knowledge has lost its purpose and "brought about chaos to the Three Kingdoms of Nature: the animal, the vegetal and the mineral" instead of peace and justice [22] (p. 133). Knowledge is not value-neutral. He differentiates between true knowledge and that which masquerades as true knowledge but has been interpreted through a prism and worldview of a civilisation (in our current globalised case, the Western civilisation), imbibing the character, personality, and pursuits of that civilisation. Discounting sacred knowledge, the secularised West depends on "man's rational capacity alone to unravel the mysteries of his total environment and involvement in existence", resulting in evolutionary morals and values to guide one's navigation through life. Yet, the Qur'an mentions three levels in which knowledge can be deemed certain (i.e., three epistemological approaches): certainty derived by inference; certainty derived by direct vision (including the spiritual vision); and certainty derived by experience [22]. The levels refer to the two types of knowledge: the transcendental knowledge of God as the Object of Worship, and the rational knowledge of accidents, attributes, relations, and distinctions to understand causes, uses, and purposes [22]. These knowledges are seated in the soul, heart and intellect [22]. The transcendental knowledge is "food and life for the soul" and is acquired through revelation [22]. The rational knowledge is pragmatic to assist man to live in this world; it is "acquired through experience, observation and research; it is discursive and deductive, and it refers to objects of pragmatic value" [22] (p. 146). The ordering of the knowledges is key as the first type of knowledge provides the "guiding spirit" for the second, without which, humankind is directionless and enmeshed in "the labyrinth of endless and purposeless seeking" [22] (p. 147).

3.1.2. The Purpose of Education

The pursuit of knowledge without purpose is meaningless. In a secular worldview, nothing is certain except uncertainty, and thus, the thirst for inquiry is never quenched as the original purpose of inquiry has been forgotten [22]. This material worldview results in a never-ending pursuit of "development" and "progress", which Al-Attas [22] (p. 137) describes as "humanistic existentialism".

Given the transcendental and rational knowledge in Islam, humankind's purpose and resultant actions and attitudes are made clear: to worship and obey God as well as serve responsibly as the vicegerents of God on earth. Thus, "the purpose of seeking knowledge is to inculcate goodness and justice in man as man and individual self, and not merely in man as citizen" [22] (p. 148). Following the purpose of seeking knowledge, the aim of education is "to produce a good man" [22] (p. 150). This means striving for excellence in character through enriching the soul, intellect, and heart. This goodness relates to both the spiritual and the material life of an individual.

3.1.3. The Meaning of Justice

According to Islam, as humankind is entrusted with the responsibility to rule according to God's Will, Purpose, and Pleasure, humankind needs to do this justly, and thus knowledge and justice are inextricably linked. Justice is defined as "the harmonious condition or state of affairs whereby everything or being is in its right and proper place—such as the cosmos; or similarly, a state of equilibrium, whether it refers to things or living beings" [22] (p. 149). Justice and injustice are connected to the soul which has two natures: the higher rational soul that knows God and the lower animal soul that is inclined to worldly desires. For one to strive for justice both inwardly and outwardly, the rational soul should rule over the animal soul [22]. Note here the difference between a secular worldview where rational is associated with only empirical knowledge, and an Islamic worldview where the higher-order rational soul is the one that knows and is in obedience to God. Obedience to God is an action that is just, where the just action itself is a form of worship.

Al-Attas explains that justice in Islam is not primarily concerned with the outward sociopolitical sphere, determined by and for relationships between different parties and people. Rather, it is more inward and for the individual's soul as it obtains closeness to God [22]. Striving for justice within results in justice externally with others, for example, the curbing of greed, gluttony, pride, and anger. Wisdom is the application of knowledge that causes the occurrence of justice, and requires the application of logic and emotional control [24].

In summary, using Al-Attas' desecularised conceptualisations of education and justice at the ontological level, the frame in which we discuss education can be reset. Firstly, teaching and learning happen with and through the heart, soul, and intellect; thus, solely intellectual pursuits should be avoided as they result in a deficient education. Secondly, the purpose of education is to produce good and just human beings; thus, this should be front and central in curricula. Thirdly, justice is not merely an outward act but starts inwardly curbing our animal soul; thus, character development should be a critical component of education. With this reframing, we can begin to assess the extent to which the EdTech we use can achieve such aims.

3.2. Embodied Cognition and Critical Pedagogy

Following Al-Attas' critique of the dualistic nature of the secular West and the separation of the body, soul, and intellect, embodied cognition expands on their interconnectedness at an epistemological level.

3.2.1. Embodied Cognition

The term embodiment loosely describes the connection between the mind, the body, and the world [25]. Embodied cognition theorists differ from the classic accounts of cognition that focus predominantly on internal cognitive processes which overlook environmental factors. Varela et al. [16] (p. 173) highlight two main facets of the term embodied cognition: "[f]irst, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context". The first facet deals with the first kinaesthetic angle of embodiment such as learning through dance, movement, sports therapy, or ventriloquism, whilst the second focuses on the biological, psychological, cultural, and historical contexts that influence cognition, learning, and knowledge production [25].

Embodied cognition aims "to expose the inadequacies of the objectivist philosophical tradition in its rigid separation of the mind from the body, cognition from emotion, and reason from imagination" [26] (p. abstract). Rather, the body and its sensorimotor capacities are inextricably linked with memory, emotion, language, and life experiences (ibid.). On the one hand, there is the "inward" empirical scientific notion of a pre-given world that is understood and recovered through one's senses [16] (p. 173). On the other, there is

the “outward” notion, whereby the perceiver’s mind constructs and projects the world (ibid.). Embodied cognition aims to find a middle way between these two positions, a “mutual specification”, whereby the world and the perceiver specify each other and evolve together (ibid.).

Varela et al. [16] (p. 149) argue that “knowledge depends on being in a world that is inseparable from our bodies, our language, and our social history—in short, from our embodiment”. Johnson [26] (p. 14) emphasises this role of the social sphere: “Our community helps us interpret and codify many of our felt patterns. They become shared cultural modes of experience and help to determine the nature of our meaningful, coherent understanding of our world”.

This is not only in the present, but due to a cumulative cultural evolution [27], whereby the “environment in which the human mind develops has a history itself; and this history owes its form to the activities of human beings, which are in turn conditioned by the development of mind” [28]. McDowell [29] (p. 126) describes this as “second nature”, highlighting that human beings develop their cognitive capacities through initiation into language and tradition, which stores “historically accumulated wisdom about what is a reason for what”. McDowell [29] (p. 126) further argues that it is “a standing obligation” for the inheritors of a tradition “to engage in critical reflection” as “part of the inheritance”.

3.2.2. Embodiment and Critical Reflexivity

While embodied cognition theorists strongly emphasise the role of the environment, the body, and culture, it is often spoken of apolitically. Drawing on Freire [30], critical pedagogy brings together the concepts of embodied cognition, with the recognition of imbalances in social orders, to set out a praxis that uses these concepts to strive for social change. This pedagogy involves constantly developing a “critical consciousness” which is “learning to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality” [30] (p. 17).

An important aspect of critical pedagogy is “critical reflexivity” which “recognises the embodied nature of the practitioner’s response to the world” [31] (p. 88). Door argues that educational practise cannot be separated from the “essential nature of the practitioner”; thus, continuous reflexive critique is needed by the practitioner on the interrelatedness of the self and the world (ibid.). Through this, Freire [30] argues that one can change one’s practise through conscientization with the aim of mutual humanization. Critical reflexivity requires practitioners to critique the socio-cultural world and its external impositions on them, as well as to critique themselves. This requires a critique of one’s embodied transactions [31].

Door [31] (p. 90) highlights that both our thoughts and actions can be “habitual and embodied” such that “the way we really think is revealed in our actions”. Using critical pedagogy as an educational process, Freire [30] argues that when one takes a conscious stance to investigate one’s positionality in the world in relation to others, the process of mutual humanization takes place, whereby both the oppressor and oppressed are transformed. While we are initiated into the world through the enculturation of a second nature, these views can be critiqued and changed when we reach a state of critical consciousness.

In summary, embodied cognition argues that we come to know things through our bodily experience, as well as through our environment; thus, learning environments should engage all the sensorimotor capacities and harness the knowledge developed from cumulative histories. Critical reflexivity illustrates that the embodied cognition of teachers and learners need not stifle their growth if they are critically conscious and reflexive. With this understanding of how teaching and learning happen, we can begin to assess the extent to which the EdTech we use can support embodied learning.

Sections 3.1 and 3.2 have covered the ontological and epistemological framing of this conceptual framework outlining the nature of knowledge, the purpose of education, the seeking of justice and goodness through education and the way in which knowledge

is generated/accumulated and learning happens. This requires spiritual development, character development, and critical reflexivity both individually and societally. However, justice has many contesting conceptualisations. The following sections delve deeper into justice and decolonial thought.

3.3. Social Justice

Social justice discourses are sometimes not the most relevant to the contexts of the Global South. This section illustrates that while the Global North theories of justice are designed from and for their contexts (Section 3.3.1), some recent theories of global social justice have begun to take a holistic approach (Section 3.3.2), acknowledging geopolitical inequalities, focusing on human dignity for all rather than those with a particular citizenship, and surfacing issues of recognition and representation for marginalised peoples globally [32,33].

3.3.1. Dominant Global North Theories of Justice

The dominant understandings of social justice applied globally today are developed from debates and discourses from the Global North, promoted through global institutions like the United Nations. While there are many contesting conceptualisations of justice within the Global North discourses, they draw on a similar intellectual history which sets the framing of the debates. Additionally, they are developed from their own evolving worldviews and contexts. This is true for all the theories rooted in particular regions, contexts, and frames, but it is the dominant Western theories of justice that are often applied universally, and it is these dominant theories of justice that have often overlooked (or justified) global injustices such as slavery or colonialism. Four main schools of thought can be said to have emerged from the debates between these Western scholars (and others) on justice: utilitarianism [34,35], libertarianism [36], Kantianism [37,38], and Aristotelianism (along with neo-Aristotelianism [39,40]).

The work of Rawls, an American philosopher, is expanded on as his work is a precursor to the social justice theories used to build the analytical framework. Rawls [38] opposed utilitarianism and revived a Kantian version of social contract theory with his theory of justice as fairness. He conceptualised the veil of ignorance where one should conceptualise a society where one's own gender, race, ethnic identity, level of intelligence, physical strength, quickness, stamina, etc. is unknown. With this approach, Rawls argues two basic principles: "equality in the assignment of basic rights and duties" and that "social and economic inequalities, for example inequalities of wealth and authority, are just only if they result in compensating benefits for everyone, and in particular for the least advantaged members of society" [41].

Rawls's work has been extremely influential on the conceptions of justice in the US and other English-speaking countries [41]. A few contemporary scholars have challenged his work, offering alternatives. Nozick [36], a libertarian, was opposed to the compromise of individual liberty for the sake of socio-economic equality and promoted as little regulation as possible. Nielsen [42], a socialist, was opposed to both Rawls and Nozick and considered equality to be of greater importance than individual liberty. Sandel [43], a communitarian, argues that the wellbeing of the community takes precedence over individual liberty, and views that Rawls does not place enough emphasis on community and community values. Pogge [33] takes a globalist stance on justice, extending Rawls's egalitarian view on justice, which seemed to only work intranationally, to make it more globally applicable.

As we can see, Western thought cannot be homogenised into one point of view. However, all these theories build upon and interact with each other and the norms and values of the evolving contexts, setting the frame of the discussion. For example, the emphasis of justice in relation to property rights, individual rights, or liberty may not be of central concern in the conceptualisations of justice in non-Western societies.

3.3.2. Global Social Justice

Building upon Rawls, Nancy Fraser [32], an American critical theorist, has produced a comprehensive framework that responds to the contemporary problems of globalisation and identity politics in relation to justice. Fraser highlights that we can no longer look at justice in a territorial way considering transnational corporations, international currency, international non-governmental organisations, mass media, and the internet, among other global forces. She discusses the concepts of distributive justice and recognitive justice in her earlier works [44], and then brings representative justice into her later works [32]. The key concept in Fraser's work on justice is participatory parity which views social justice as that which is required to make it possible for all the participants to be on an equal footing in social life [32].

3.3.3. Social Justice in Global South Education

In the past 15 years, the social justice theories from the aforementioned Global North social justice scholars have been applied to analyse injustices in the Global South education systems and have birthed a pool of social justice literature specifically relevant to such contexts [45–48].

One example is that of Pendlebury and Enslin [48], who draw on the work of Young [49] and others to emphasise how political injustices and educational injustices are inextricably linked. They argue that redistributive justice alone is insufficient in light of domination and oppression that function to exclude people. Beyond justice *outcomes*, justice needs to focus on *procedures* such as the “discriminatory practices commonly built into the institutional procedures for school admission” [48] (p. 33). Their work highlights the structural inequalities in South Africa such as the difference between external exclusion (such as apartheid) and internal exclusion, which is the “pretence of inclusion” whereby the previously excluded “remain on the margins of deliberation, silenced or ignored” [48] (p. 32). Drawing on this, they argue that “educational exclusion—both external and internal—serves as a barrier to genuine political inclusion and participation, as well as to self-development” [48] (p. 47). From this, we see social justice concepts being applied and built upon locally, making explicit issues of power, domination, and exclusion as well as calls for decolonising education as a core social justice concern and making explicit epistemic injustices [47,50,51].

Drawing on the notion of epistemic injustices, Hodgkinson-Williams and Trotter [47] build upon Fraser's [32] global justice framework (which does not explicitly mention epistemic injustices) to develop a social justice framework for understanding Open Education in the Global South. Fraser [32] highlights three levels of justice: redistributive justice, recognitive justice, and representational justice. The opposite end of redistribution is maldistribution, whereby people are inhibited from participating equally due to economic and class structures, for example, inequalities in infrastructure, education, and health care [32]. The opposite end of recognition is misrecognition, whereby hierarchies of status deny people equal respect and opportunity, for example, based on race, gender, sexuality, religion, or nationality [32]. The opposite end of representation is misrepresentation and misframing, whereby frames prevent the marginalised from challenging the forces that oppress them [32]. Fraser [32] outlines misframing as the defining form of injustice in the age of globalisation, whereby international corporations and transnational organisations are shielded from democratic control.

In all of these dimensions, Fraser [32] differentiates between *affirmative responses*, which push the boundaries of the frames but essentially accept them, and *transformational responses*, which question the frame-setting itself. Hodgkinson-Williams and Trotter [47] expand on each with ameliorative and transformative responses. At the level of *redistribution*, they place a strong emphasis on addressing the root causes of *maldistribution* with a call to *restructure* economic models. At the level of *recognition*, they explicitly mention epistemic injustices through what they term *re-acculturation*: “which would respect alternative epistemic positions and acknowledge alternative authorities on what is considered to be worthwhile knowledge and dispositions” [47] (p. 207). Additionally, drawing on Luckett and Shay [50]

whose work, in turn, has been influenced by the student protests for decolonised education, Hodgkinson-Williams and Trotter [47] use Lockett and Shay's [50] (p. 12) concept of *reframing*, beyond *representation*, to highlight the need to "democratis[e] the process of frame-setting itself". Although all three dimensions are interrelated and reinforcing, they are not reducible to each other and thus stand as their own dimensions [32].

3.4. Decoloniality

Decolonial discourses have evolved from Global South scholars and/or traditions and aim to dismantle global power imbalances, including injustices regarding whose and what knowledges count [52–56]. Decolonial theories were born in contestation with the universalisation of the Euro-centric frameworks of human values. For example, whilst Wronka [57], in alignment with the United Nation's [58] articulation of social justice, argues that *human rights is the bedrock of social justice principles*, decolonial discourses *seek to decolonise such human rights frameworks* [59–61].

This section explores the origins of decoloniality and decolonial-like movements, decolonising education, and decolonising technology. Further, it provides critical perspectives on decolonial concepts. While African and Latin American decolonial works are outlined, other notable works in counter-hegemonic and decolonial thinking include Connell's [52] Southern Theory, Santos' [55] Epistemologies of the South, and many others that are often not captured in the written literature.

3.4.1. Overview of Decolonial Thought

Decolonial discourses arose out of various "ex-colonised epistemic sites" such as Latin America, the Caribbean, Asia, the Middle East, and Africa [54] (p. 489). While often under differing names and banners, they highlight one central theme: colonialism is not simply an event in history that has passed. Rather, it is part of a broader and long-lasting project. In this broader understanding, decoloniality speaks from sites that have experienced "the slave trade, imperialism, colonialism, apartheid, neo-colonialism, underdevelopment, and neo-liberalism including Washington Consensus and structural adjustment programs" from the sixteenth century to date [54]. Decolonial movements argue that despite political emancipation in the late 20th century, "domains of culture, the psyche, mind, language, aesthetics, religion, and many others have remained colonized" [54] (p. 485).

In Africa, and within the African diaspora, decolonial-like movements have existed separately under various banners such as "Ethiopianism, Garveyism, Negritude, Pan-Africanism, African Socialism, African Humanism, Black Consciousness Movement, and African Renaissance" [54] (p. 488). Nkrumah [62,63] is known for coining the term "neo-colonialism" in his book "Neo-colonialism: The Last Stage of Imperialism". While scholars such as Rodney [64] and Amin [65] focused on underdevelopment and dependency, i.e., the economic strand of coloniality which had been the main focus after political freedom, scholars like Thiong'o [56] focused on the psychological, epistemological, cultural, and linguistic manifestations of coloniality [54].

Although the early African scholarship has been largely disparate, Latin American decolonial scholars such as Quijano [66], Mignolo [67], Maldonado-Torres [7], and Grosfoguel [53] have been highly influential in formalising decoloniality as a school of thought. In particular, the term coloniality was coined by Quijano, and further developed by Mignolo and Maldonado-Torres as defined in Section 2.1.

Since decoloniality refers to the *process* of the removal of colonial legacies rather than the historical *period* in which colonial rule collapsed, colonialism cannot be decoupled from "the broader wave of Euro-North American-centric modernity that radically transformed human history" [54]. The three main concepts in decoloniality are the *coloniality of power*, *coloniality of knowledge*, and *coloniality of being*.

Coloniality of power refers to "global hierarchies" of "sexual, political, epistemic, economic, spiritual, linguistic and racial forms of domination and exploitation" [53] (p. 217). These hierarchies are intersectional and entangled, in particular, "the racial/ethnic" and

“Euro-American/non-Euro-American” divides which “transversally reconfigure” all power relations (ibid.). Mignolo [67] (p. 155) refers to this as the “colonial matrix of power”.

Coloniality of knowledge focuses on epistemic hegemony, particularly “the politics of knowledge generation, as well as questions of who generates which knowledge and for what purpose” [54] (p. 490). It assists in understanding “how endogenous and indigenous knowledges have been pushed to the barbarian margins of society” (ibid.).

Coloniality of being emphasises “the effects of coloniality in lived experience and not only in the mind” [7] (p. 242). It refers to the ontological dimension of coloniality “expressed partly in Western civilization by the West’s philosophical discourse’s monopoly on the meaning of Being, or to be more precise on its exclusive possession, control, and exercise of the philosophy on existence” [68] (p. 7).

Thus far, I have expanded on the (de)coloniality definitions adopted in this article; however, it is important to understand this alongside other decolonial-like schools of thought not adopted here. The first is anticolonialism. Ndlovu-Gatsheni [54] (p. 488) outlines that anticolonialism became “largely an elite-driven project” where the black elite sought to take the place of white colonial powers under the guise of nationalism or Africanisation. Decoloniality involves challenging racial hierarchies and asymmetrical power relations, whereas anticolonialism seems to only address the former. Grosfoguel [53] (p. 212) highlights that decoloniality “is not an essentialist, fundamentalist, anti-European critique. It is a perspective that is critical of both Eurocentric and Third World fundamentalisms, colonialism and nationalism. What all fundamentalisms share (including the Eurocentric one) is the premise that there is only one sole epistemic tradition from which to achieve Truth and Universality”.

The second distinction is between decoloniality and postcolonialism. These theories share similarities but diverge in key points. Both critique the colonial experience beyond a political and economic lens, dealing with themes of culture, identity, and modernity. The first difference is that postcolonialists begin their critique in the nineteenth century, whereas decolonialists mark the unfolding of modernity/coloniality in the sixteenth century when the domination and exploitation of non-Western people began and transformed over time [53]. The second difference is that postcolonialists tend to focus on metanarratives, whereas decolonialists focus on the “questions of power, epistemology, and ontology” as the fundamental questions [54] (p. 491). The third difference is that decoloniality claims to trace its foundations to thinkers from the “underside of modernity”, i.e., coloniality [69], whereas postcolonial scholars draw on poststructuralist and postmodernists, i.e., Western scholars (albeit those that are self-critical of the West) [54] (p. 491). This third point can be contested. Many decolonial scholars have also in fact drawn on Western scholars, and it would be difficult to envision that these Western scholars have never influenced their work, even if to highlight contradictions. Furthermore, to not engage with crucial and relevant work from the West, such as the Critical Theory from the Frankfurt school, merely because of its social location, can be counter-intuitive to countering hegemony. Mbembe [70] warns against self-ghettoization, whereby only those who are native to a place are permitted to produce knowledge. Linking with embodiment, decolonial scholars such as Grosfoguel [53] (p. 213) make explicit the “bodypolitics of knowledge”, whereby one speaks from “a particular location in power structures”. He highlights “the locus of enunciation, that is, geo-political and body-political location of the subject that speaks”, is in juxtaposition to the “Western myth” or “the disembodied and unlocated neutrality and objectivity of the ego-politics of knowledge” (ibid.). Further, Grosfoguel [53] highlights that being socially situated on the oppressed side does not automatically result in thinking from a marginalised epistemic perspective as the modern/colonial world-system strives to get individuals in the oppressed side “to think epistemically like the ones on the dominant positions”.

One shortfall in Grosfoguel’s [53] hierarchies is that it often poses dualities; one is either from one epistemic location or another. However, colonialism has left a legacy of confused and intersecting identities and cultures. It is useful to draw on the postcolonial scholar, Bhabha [13], who argues that the colonised subject is neither self nor other, but

rather a hybridised identity of otherness of the self. He emphasises that cultures continuously evolve and are not fixed to one period. The notion of fixity in culture is a result of stereotyping by colonialists. Hybridity happens at the level of race, language, literature, culture, and religion and occurs in various intensities and forms. Fanon (1961) [71] similarly highlights that precolonial practises have been lost or warped, and that identities today are a combination of our experiences. He asserts that new present-day identities be formed for the current hybridised being. Singh [72] argues that hybridity lies on a spectrum of influence; while some are actively pursuing the culture of the colonisers, others unknowingly adopt it. A critical consciousness is needed to become aware of the colonisation of the mind and ingrained colonial logic. As present-day identities are hybridised, this brings in new questions of what a decolonised education looks like.

3.4.2. Decolonising Education

A key feature of decolonising education is liberating the mind; conscientising the marginalised that the Renaissance Man—the enlightened, refined, civilised, cultured man—is not the ideal and universal archetype that they have been taught to believe [73]. Through this process, the attitudes of the colonised changes to wanting to reclaim their identities and lost humanities. For Fanon [71] (p. 159), a liberating education involves “opening their minds, awakening them, and allowing the birth of their intelligence. . .in the end everything depends on the education of the masses, on the raising of the level of thought”. However, what constitutes a decolonial education remains under debate. This subsection discusses these debates, drawing on the works of foundational decolonial thinkers and contemporary critical thinkers as well as the decolonial movements in South African universities.

Between Local Relevance and Epistemic Diversity

A decolonial education problematises who decides what knowledge is, what is put into the curriculum, what is left out, and what is hidden [74,75]. There are, however, a variety of approaches in striving for a decolonial education. Jansen’s [76] analysis is useful in understanding different approaches. The first approach argues for an absolute replacement of European knowledge by local and/or indigenous knowledges. This extreme stance allows for marginalised knowledges to be reclaimed but runs the risk of nativism and fundamentalism [77]. The second argues for the decentring of European knowledge and the recentring of local and indigenous knowledges. The caution with this is romanticising local and indigenous knowledges as infallible [78]. The last stance argues that knowledges are entangled and inseparable in a way that is not regional, but rather travelling across space, and evolving with time, such that knowledges are better engaged with thematically rather than regionally. The risk of this approach is that the knowledges of the dominant will feature more than marginalised knowledges. Scholars continue to examine considerations around these approaches.

Drawing on Fanon, Dei and Simmons [79] argue that marginalised students and their communities are disjointed from their education which is set by the dominant powers, in the dominant power’s language, with the purpose of furthering the dominant’s agenda. Thus, a decolonial education should be locally and culturally relevant. It should meaningfully connect with the students’ daily lives and needs and address the “spiritual and emotional harm” that schooling can cause to the oppressed through the negation and “amputation” of parts of themselves [79] (pp. 9, 16). Furthermore, the assessments used need to provide students with “options and opportunities to display their brilliance, talents and educational excellence” [79] (p. 12).

As language is a repository of knowledge and culture, a decolonial education needs to recognise the voices, groups, methods, and epistemologies that have been excluded through language [56,80]. Thus, a decolonial education deals with social and epistemological recognition that lies at the intersection between knowledge, power, and identity [81]. Drawing on the work of Honneth [82], Lange [81] argues that recognition is important for self-confidence, self-respect, and self-esteem and defines the ethical society. Applying

the concept of recognition in practise, however, is complex. In relation to the student movements in South Africa, Lange [81] (p. 91) cautions against nativism whereby “the call for recognition operates simultaneously at the ontological and epistemological level and that the conflation between knowledge and identity tends to focus the discussion about curriculum on Africanisation”. Lange argues more strongly that Africanisation is “epistemologically and politically isolating”. Furthermore, there is no unanimous understanding of what African is. Bearing in mind the thousands of languages and cultures, African knowledges should not be romanticised as being beyond critique [83].

Lange [81] (p. 95) argues instead for “a pedagogy and a curriculum of presence” that affirms “the students and their blackness, of their selves, their bodies, their identities and in particular their direct and indirect (intergenerational knowledge) experiences of the world”. This approach decentres Euro-centric knowledge and makes room for engaging with a plurality of epistemic traditions and their entanglements, particularly those in the Global South. Through a focus on institutional culture and the learning environment, i.e., factors surrounding content and curriculum, emphasis is placed on revising the language of instruction, pedagogy, assessment, and the assumptions of student autonomy. Here, the factors that impact the ability of a student, such as historical inequality, home backgrounds, and socio-economic standards, are emphasised.

Regarding plurality, the difference between diversity and *epistemic diversity* is noted. Despite the existence of black lecturers and a growing black student population, the institutional culture has been inhospitable to black identities [81]. In the calls for decolonisation in South Africa, black students and academics highlighted that they had to assimilate into a culture that was alien to them [84]. In “transformation” processes over the last few years, cosmetic changes have been made in universities such as African print graduation gowns, a few more black academics in senior positions, and the renaming of sites to African heroes; however, the institutional structures, cultures, and administrative functioning has remained largely the same [81]. As Makgoba and Seepe [85] (p. 22) argue, diversity is not about multi-racialism but about a “reorganisation of power and privilege”. This needs to embrace different ways of knowing and ways of being.

From Local Relevance to Global Excellence

Mamdani [86] (p. 16) argues that while local relevance is important for African universities to decolonise, they also need to strive for global excellence to counter and decentre dominant Western thought presented as universal: “The challenge in higher education, in Africa and else-where, is to be both responsive to the local and engaged with the global”. He highlights that the problem with excellence is that the standards which indicate rigour have largely been formulated in the West. African universities may be in Africa, but have been and are shaped by the institutional form, intellectual content, and research methodologies of the colonial and Enlightenment experience [54,56,86]. Mamdani [86] contends that the strength of a theory lies in its comparisons; Europe is the bastion of theory because, in their mission to conquer the world, they compared, categorised, classified, mapped, and ordered everything. However, they theorised everything from their ‘superior’ colonial perspective, with the West as the reference point. The West have created theories that the rest of the world now follows.

Thus, knowledge has become institutionalised by hegemonic powers. As Lange [81] (p. 93) highlights, “knowledge itself has a history and the history of disciplines and fields of study are shaped by power relations that are themselves born in historical contexts”. Dei and Simmons [79] (p. 9) similarly discuss the need for “decolonisation at the level of discourse” that problematises the “Eurocentric prisms” through which discourses are framed, making it difficult to oppose inbuilt “hegemonic form, logic and implicit assumptions”. A part of decolonising education is affirming and validating local experiences and epistemologies, such as oral traditions or religious lenses, where a plurality of voices, experiences, histories, and knowledges can be legitimised, claimed, and celebrated.

Drawing on Mamdani [86], local experiences should not only be validated in isolation, but interact with other epistemologies (including Western ones but more specifically South-

South relations that decentre the metropole) to make comparisons and build theory with the strength of multiple reference points for a more holistic overall picture. This is in line with Fanon [71] (p. 164), who expressed the need for South–South interactions: “What we want to hear about are the experiments carried out by the Argentinians or the Burmese in their efforts to overcome illiteracy or the dictatorial tendencies of their leaders”. Mamdani [86] further asserts that in building theory, it is unavoidable to be subjective as we see the world through the lenses that we know and understand. Thus, aligning with critical pedagogy, one needs to be conscious of one’s subjectivities and critically reflect on one’s position. Emphasising knowledge exchange between different epistemologies serves to make explicit one’s own subjectivities, thereby strengthening the global knowledge base.

The work of Hoadley and Galant [87] pushes the discussion on validation even further, highlighting the lack of dialogue on the evaluation of decolonial content. In recognising that knowledge has become institutionalised through a Western perspective, they further enquire how “intellectual validity of what passes as decolonised knowledge” is established, if it should be at all [75] (p. 9), [87]. While decolonialism is more of a process than an end goal, the multiple complex and conflicting interpretations of it lead to varied outcomes. Without an evaluative framework, it is hard to engage with the practise of carrying out decolonisation. This disjoint between high theory and practicalities remains a hotbed of debate [50].

Neoliberalism in Education

This section focuses on neoliberalism in education, from the institutionalisation of knowledge to the corporatisation of knowledge. African education systems today are a historical product of the remnants of precolonial traditions, and colonial, exploitative educational models, as well as a new imposition of neocolonial policy borrowing [88]. These neoliberal policies, for example, structural adjustment policies set by the World Bank and the International Monetary Fund, turned higher education in many developing countries into a private good and aligned its goals with industry needs rather than a pursuit of knowledge [86,89]. As outlined by Baatjes [90] (p. 1), higher education institutes in South Africa “cannot escape the onslaught of neoliberal militancy that claims to provide the revolutionary solutions to social problems in a country still heavily stained with the deeply rooted legacies of apartheid”.

Thus, as important as discussions on historical injustices are, they should be analysed in conjunction with the neoliberal agenda of the commodification, capitalisation, and industrialisation of education models presently affecting the entire globe [88]. Auerbach et al. [91], in their experience of trying to set up a decolonial programme at a pan-African neoliberal university, reflected that “the logics of neoliberalism are just as potent a politicising force as any”. Highlighting neoliberal forces, Mbembe [92] (p. 30) states the following: “Universities today are large systems of authoritative control, standardization, gradation, accountancy, classification, credits and penalties. We need to decolonize the systems of access and management insofar as they have turned higher education into a marketable product, rated, bought and sold by standard units, measured, counted and reduced to staple equivalence by impersonal, mechanical tests. . .”.

Auerbach et al. [91] and Soudien [93] highlight that attempts by academics to decolonise their courses and faculties are often stifled when this comes into conflict with the institutions’ neoliberal aims or their public image. Lange [81] argues that to gain institutional support, mobilising a critical mass of concerned academics is needed to “deauthorise” it from within.

Material Realities

Thus far, the discussion has mainly theorised decolonisation in terms of the colonality of knowledge and power. A shortfall in decolonial discourses is little mention of their entanglements with material inequalities. However, the 2015 and 2016 Rhodes Must Fall decolonial student movements in South Africa highlighted that material injustices be dealt with as well as epistemic injustices. They brought to the fore the socio-economic struggles they face such as travel costs from the townships to university, cost of textbooks, and poor

living conditions [84,94,95]. Whilst the students' voices were from the university, their demands included broader societal aims such as the rights of workers and solidarity with trade unions [95].

However, discourses that have been taken up by institutions, conferences, and peer-reviewed journals tend to theorise students' calls for decolonisation as solely a call to address epistemic injustices in the curriculum, which is decoupled from the need to address socio-economic problems at the societal level. They (e.g., Jansen [76]) locate calls for decolonisation within the university space, and particularly in its curriculum. The multi-layered background of the student movements thus needs to be kept in mind to not exclude the voices of marginalised university students that do not always end up in peer-reviewed journals. Decolonial thinking seeks to go beyond merely addressing material and economic injustices to address the colonisation of the mind; however, many works on decolonisation seem to now largely focus on the epistemic injustices and overlook material injustices. Furthermore, epistemic injustices are focused on with the university as its locus (as the institutionalised place of knowledge production) without looking at the broader system. Within universities, there is a narrowed vision of decolonising at the level of curriculum, and in some cases, simply decolonising reading lists. This narrowing can exclude other sites of knowledge production, and in a way reifies the university as the only place of knowledge production. Figure 2 depicts a non-exhaustive attempt to illustrate the broader movement of decolonial thought and the different levels at which it is discussed.

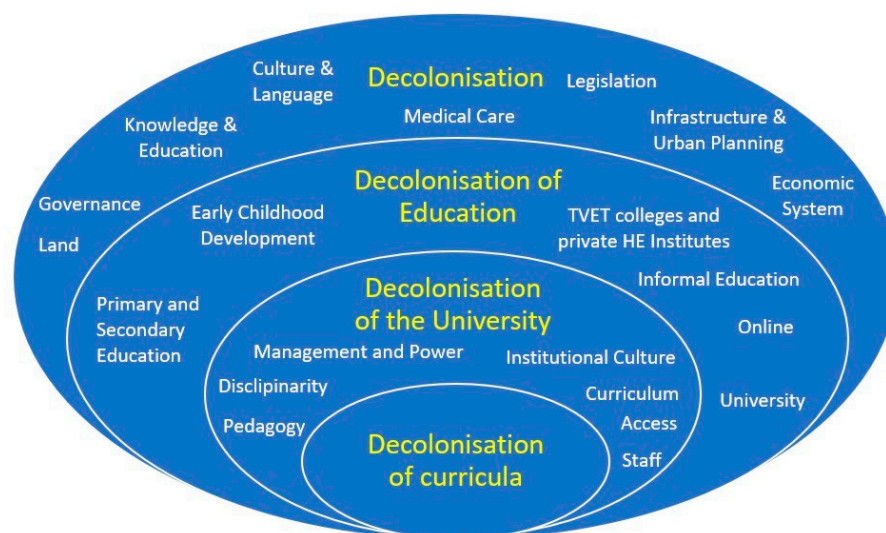


Figure 2. Levels of decolonisation.

3.4.3. Decolonising Technology and Development

Whilst vast amounts of the literature focus on who is left out by the digital divide, the big data divide, and the new AI divide, adverse incorporation into these 'global' systems receives far less attention. Here, adverse incorporation does not only refer to when inclusion actually amplifies economic, social, or political inequalities of the marginalised, but also refers to their epistemological marginalisation. Heidegger [5] warned of a time when calculative thinking might someday come to be the only form of thinking, and we can see this with the rise of technocracy. Technology is changing what we know, as well as how we come to know it [96], which leads to the amplification of epistemic injustices for knowledges that are not or cannot be digitised.

Technology is often considered synonymous with 'progress' and 'development', both of which became uncriticised goals set by the United Nations in the christening of 'the under-developed' world in 1949 [97]. Through idolising Western progress, the democratisation of access to technology has become an urgent necessity without questioning the essence of technology itself: "democratization without a corresponding ontological trans-

formation will just end up replicating and reifying the technological understanding of being” [98] (p. 67).

Decolonising technology aims to destabilise hegemonic, capitalistic, and neoliberal practises embedded in technology through subversively turning it into tools for resistance and liberation. Discourses problematising inequalities embedded in information technology include decolonial computing, critical software studies, and critical algorithm studies. Using critical race studies, feminist theory, and decolonial perspectives, such discourses push beyond simply isolating the problems to its use and content, to the discussions of who creates information technology, who it is designed for, and the “embeddedness of coloniality—that is, the persistent operation of colonial logics” [99] (p. 1). These critiques focus on who has power, who has agency, and whose agendas are promoted through analysing how information technology is developed, distributed, and capitalised [100].

Similarly, digital neocolonialism is defined as “the use of technology and the internet by hegemonic powers as a means of indirect control or influence over a marginalised group or country” [4] (p. 370). In digital neocolonialism, hegemonic powers need not be a nation state, as in colonialism, but could be a corporation or institution. Digital neocolonialism is a form of economic, social, or cultural hegemony exercised through the internet and technology [101]; it attempts to control a community, exploit it economically, and erase its identity [100]. Similar discourses include *cybercolonialism/cyber imperialism* centred around the dangers of forced dependence on information technology from digitally advanced countries [102], and *data colonialism* focusing on ethics in the collection and use of data [103]. *Technology colonialism* [104] and *techno-capitalism* [105] (p. 3) focus on “corporate power” and the “exploitation of technological creativity” in the contemporary knowledge economy. For example, the ubiquitous impact of *platform capitalism* via companies like Amazon, Google, Facebook, Ali Baba, Uber, and others have captured the market share and formed monopolies, using mergers and the acquisitions of smaller companies to feed their data needs and to eliminate competition. Such platform models have an insatiable need for more data and will go to lengths to obtain it, infringing on privacy or workers’ rights [106]. Economic motives are often masked as charitable actions such as Facebook Free Basics which aimed to expand data acquisition into untapped areas [107].

The level at which technology should be used in decolonial futures varies widely between scholar-activists, ranging from seeking a re-envisioning of the uses of technology in our lives through radical reform to taking a more weary anti-technology, beyond-reform stance [5,108]. The increasing presence of (generative) AI across fields further raises concerns for the epistemic marginalisation of concepts, practises, beliefs, and traditions that are not online, and the solidification of hegemonic discourses.

4. Analytical Framework for Decolonising Educational Technology

This section draws on the aforementioned concepts to form the Dimensions of Human Injustice (DoHI) Analytical Framework for educators, researchers, practitioners, implementers, and policymakers to use to critically analyse EdTech and the field of EdTech. The DoHI Analytical Framework is rooted in the concepts of the desecularisation of knowledge, embodied cognition, and critical reflexivity, and ties together the strengths of social justice and decolonial concepts to build a more robust and holistic approach. While frameworks from social justice and decolonial discourses exist, the social justice frameworks do not emphasise the epistemic injustices dimension aptly, and likewise, the decolonial discourses do not emphasise the material injustices dimension aptly. The framework in Figure 3 highlights three intersecting and reinforcing dimensions: material, ontological and epistemic, and (geo)political injustices.

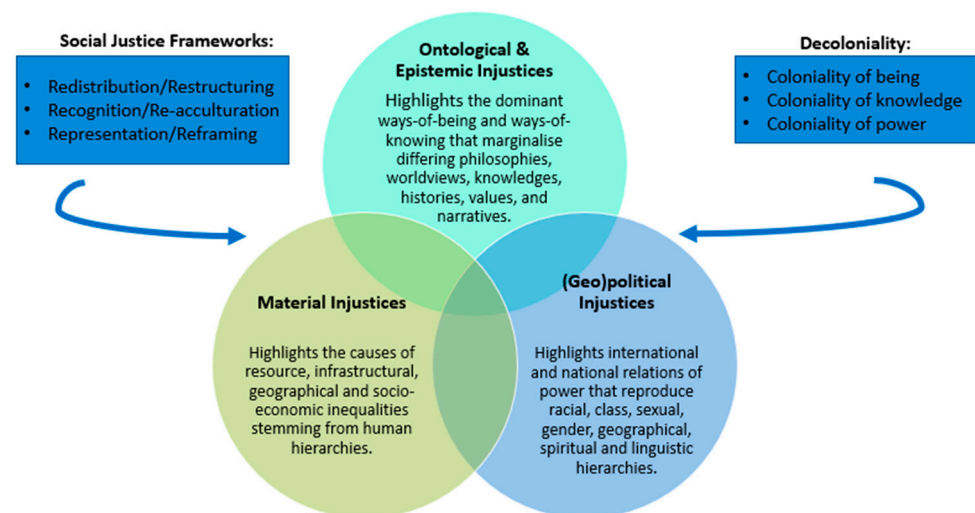


Figure 3. Dimensions of Human Injustice Analytical Framework.

The following sections describe each dimension, its links to the notions discussed in the conceptual framework, and its application to critiquing injustices in EdTech. These critiques are non-exhaustive and -illustrative as every EdTech is nuanced (e.g., a MOOC versus a personalised learning platform versus a national EdTech strategy) and should be analysed with its unique design, implementation, levels of human engagement, and context in mind. While designed to critically analyse the field of EdTech, the framework can be used to analyse inequalities in other fields such as health or social protection. This is due to the conceptual framework going back to the root causes of coloniality that impact all aspects of life.

4.1. Material Injustices in EdTech

Material injustices highlight the causes of resource, infrastructural, geographical, and socio-economic inequalities stemming from human hierarchies. This dimension primarily draws on Fraser's [32] and Hodgkinson-William and Trotter's [47] notions of redistribution and restructuring, and on the Rhodes Must Fall decolonial student movements highlighting the socio-economic struggles marginalised students face within and outside education institutions [84].

Material injustices in EdTech are often described as the digital divide. A study from South Africa looking at barriers in EdTech uptake breaks this down in terms of the ability to access, use and equitably benefit [109]. Access relates to adequate physical infrastructure, electricity, network coverage, connectivity speeds and data costs, among others. Effective use requires digital literacy, critical digital literacy, and opportunities to utilise as well as overcome socio-technological barriers such as the distrust or fear of technology, low technical support, maintenance (costs), and privacy concerns. For equitable benefit to all, personal and socio-economic factors need to be addressed, such as gender, age, employment, educational background, neighbourhood, and household income [110]. A UNICEF report highlights the impact of these material inequalities during the COVID-19 pandemic, where those from lower socio-economic backgrounds were further disadvantaged [1]. From an educational institution perspective, low-resource settings lack the funds and training to effectively implement and maintain EdTech. For example, this was the case in the implementation of open educational resources in the Global South where resource limitations stifled local adaptation [78]. Often, public or donor funds for essential educational services and infrastructure improvements get used to purchase EdTech that quickly becomes obsolete. Furthermore, the push for EdTech can lead to the privatisation of education, with private companies profiting from selling EdTech. This can be seen through the increase in venture capital investment from USD 500 million in 2014 to USD 20 billion in 2021 [111].

Addressing these material injustices requires ensuring that the most marginalised are not further disadvantaged by the proliferation of EdTech.

4.2. *Ontological and Epistemic Injustices in EdTech*

Ontological and epistemic injustices highlight the dominant ways of being and ways of knowing that marginalise differing philosophies, worldviews, knowledges, histories, values, and narratives. This dimension draws on Al-Attas' [22] desecularised understanding of knowledge, holistic ways of learning, broadened purpose of education, and description of justice as both inward and outward. It also draws on decolonial thought regarding the coloniality of being and the coloniality of knowing [54]. From social justice, re-acculturation is key to embracing a plurality of perspectives [32]. Furthermore, the concept of embodied cognition underpins this dimension [16], with critical reflexivity argued as key to addressing epistemic injustices [31].

Ontological and epistemic injustices in present-day education (highlighted in previous sections) can be further amplified in EdTech, particularly in EdTech platforms like MOOCs that claim to serve global, diverse populations at once [4]. EdTech often prioritises the intellect components of education (that can be automated) and reduces the heart and soul components (e.g., empathy, compassion, ethics, virtues, humility, spiritual growth, connection to a greater purpose, and service to humanity), thus offering a substandard education comprising merely of information exchange. By disregarding the spiritual and cultural dimensions of education, EdTech can propagate cultural assimilation and homogenisation into Western ways of being. This can lead to spiritual and emotional harm as well as cognitive dissonance when the education received is incongruent with one's worldview.

In EdTech models where a learner independently completes lessons, exercises, and assessments until a predetermined set of content and skills is mastered, the role of the teacher and peers can be minimal, as highlighted in a study by UNICEF reviewing 40 personalised learning platforms [112]. This reduces opportunities for human engagement and epistemic exchanges. While such EdTech is usually designed to augment in-person teaching, it is often used as more of a replacement, particularly in low-resource settings with limited or underqualified teachers. For example, in Malawi, low-cost tablets with personalised learning software to teach literacy and numeracy are changing the role of the teacher to be the supporter and facilitator of the EdTech (instead of the EdTech supporting the teacher) [113].

EdTech and GenAI have the potential to encourage critical thinking, rhizomatic learning, and Socratic engagement, but only if used intentionally for such a purpose. For example, Khanmigo guides the learner to discover the answer for themselves instead of providing the answer [114]. GenAI can also exacerbate epistemic inequalities due to its supposed value-neutral, factual, and objective responses built by Western-centric training data in colonial languages [2]. This further marginalises knowledges that are not online or are not in colonial languages to the extent that what is not online may no longer be counted as knowledge; similar to how written sources are now seen as more rigorous than oral sources. AI also lacks embodied cognition, limiting its ability to truly empathise, care, nurture, or use intuition, which are essential qualities of good educators. With human characteristics acknowledged as a crucial aspect of education, a further risk is the commodification of human connections, whereby automated parts of learning are free for the masses to access, and connection to human educators is commodified as the unbundling of education increases [115]. Addressing ontological and epistemic injustices requires examining whether EdTech strives to provide an education that produces good and just human beings, embracing pluralistic ways of being and ways of knowing, and recentres human connections in the embodied teaching and learning process.

4.3. Geopolitical Injustices in EdTech

(Geo)political injustices highlight international and national relations of power that reproduce racial, class, sexual, gender, geographical, spiritual, and linguistic hierarchies. This dimension draws from Freire's [30] foregrounding of the politics of knowledge, Pogge's [33] and Fraser's [32] emphasis on the need for global social justice, and on Mignolo's [67] colonial matrix of power.

Geopolitical injustices in EdTech occur when EdTech products, programmes, policies, and/or strategies are asserted from the Global North to the Global South, setting the agenda and promoting the priorities of international donors and corporations. Regarding techno-capitalism and digital neocolonialism, Big EdTech can monopolise by merging with or acquiring smaller EdTech companies that arise in the Global South, gaining access to previously unattainable data sets, stifling home-grown solutions, and reinforcing economic dependence. With international development, the adoption of national EdTech strategies and policies can be strongly suggested for development funds to be released. Often, international development EdTech programmes—focused on scale and cost-effectiveness—are implemented in the Global South, while they would not be accepted by parents, educators, or education departments in the Global North.

In terms of the innovation, funding, design, and development of EdTech, this occurs largely in the Global North (or Global North proxies in the Global South) and trickles down to the Global South. As these products are designed for their context, hidden contextual premises are baked into the design, making EdTech not only less effective in other contexts, but possibly detrimental when large sums of (public) funding are spent to purchase EdTech. Some assumptions include that the product will be used with good connectivity, augment quality classroom teaching, or that learners have the requisite digital literacy. Surface attempts to adapt and localise—such as changing names and skin colour—fail to address the Western-centric ways of being rooted in the design. This core-to-periphery transfer is problematised by the fact that “localised” is a term mostly used when talking about adapting from the Global North to a Global South country, and rarely the inverse. With the increasing technologisation of education in schools and education systems, opting out is often not a choice (especially if learning through EdTech is the only option available), leading to adverse incorporation. This is strongly linked with data colonialism, whereby learners' data are taken without clear consent or benefit to them. To address geopolitical injustices, funding and support are needed to develop and implement local EdTech solutions, local educational needs and goals need to be prioritised above international strategies, and marginalised groups need to shape both local and global agenda-setting.

5. Conclusions

With education being continually reduced to rationalistic, secular, and neocolonial logics, ubiquitous EdTech use in education may seem the logical next step for education systems. However, further scrutiny is required to determine whether the EdTech is supporting a holistic teaching and learning experience through the heart, intellect, and soul. All education, including learning through EdTech, should encompass and centre character development, encouraging learners to be good and just, and not merely developing instrumental skills. Human connections are key to achieving this holistic education, and even the latest EdTech advancements in GenAI lack the embodied cognition required to empathise, care for, and nurture learners.

Drawing on social justice discourses and decolonial discourses, the Dimensions of Human Injustice Analytical Framework developed can assist educators, researchers, practitioners, implementers, and policymakers to critically analyse EdTech products, services, programmes, interventions, strategies, and policies. Through critiquing the field of EdTech through the dimensions of material, ontological and epistemic, and (geo)political injustices, crucial issues surface. These include inequitable benefit due to different socio-economic factors, the commodification of human connections, adverse incorporation into digitalised education, bias towards Western-centric knowledges and cultures available online, the

marginalisation (and even extinction) of knowledges that are not online or cannot be portrayed digitally, spiritual and emotional harm, and data colonialism. As EdTech continues to evolve, some of the injustices it creates or exacerbates may be reduced and others may be amplified. Of critical concern, though, is the promotion of a technological mindset in education such that education risks being confined to what can be understood and pursued through a technological way of being, thereby potentially limiting holistic educational approaches and losing sight of the intrinsic purpose of existence.

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In line with the ethos of this article, the ideas, thoughts, and theories presented here have built on the cumulative social history of communities that have helped the author to understand and interpret the world. These contributions are not easily citable as they are embodied and experienced yet shape the process of meaning-making necessary for such conceptualisation. Additionally, discussions and debates with friends and colleagues over many years have contributed to the ideas presented in this article.

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